



# **Patient Safety Indicator 10 (PSI 10) Postoperative Acute Kidney Injury Requiring Dialysis**

**October 2016**

**Provider-Level Indicator**

**Type of Score: Rate**

## **Prepared by:**

Agency for Healthcare Research and Quality

U.S. Department of Health and Human Services

[www.qualityindicators.ahrq.gov](http://www.qualityindicators.ahrq.gov)

## **DESCRIPTION**

Postoperative acute kidney failure requiring dialysis per 1,000 elective surgical discharges for patients ages 18 years and older. Excludes cases with principal diagnosis of acute kidney failure; cases with secondary diagnosis of acute kidney failure present on admission; cases with secondary diagnosis of acute kidney failure and dialysis or a dialysis access procedure before or on the same day as the first operating room procedure; cases with acute kidney failure and cardiac arrhythmia, cardiac arrest, shock, urinary tract obstruction or chronic kidney failure; and obstetric cases.

*[NOTE: The software provides the rate per hospital discharge. However, common practice reports the measure as per 1,000 discharges. The user must multiply the rate obtained from the software by 1,000 to report events per 1,000 hospital discharges.]*

## NUMERATOR

Discharges, among cases meeting the inclusion and exclusion rules for the denominator:

- any secondary ICD-9-CM diagnosis codes for acute kidney failure and any-listed ICD-9-CM procedure codes for dialysis

### *Acute kidney (renal) failure diagnosis codes: (PHYSIDB)*

5845	AC KIDNEY FAIL, TUBR NECR	5849	ACUTE KIDNEY FAILURE NOS
5846	AC KIDNEY FAIL, CORT NECR	586	RENAL FAILURE NOS
5847	AC KIDNEY FAIL, MEDU NECR	9975	SURG COMPL-URINARY TRACT
5848	ACUTE KIDNEY FAILURE NEC		

### *Dialysis procedure codes: (DIALYIP)*

3995	HEMODIALYSIS	5498	PERITONEAL DIALYSIS
------	--------------	------	---------------------

## **DENOMINATOR**

Elective surgical discharges, for patients ages 18 years and older, with any-listed ICD-9-CM procedure codes for an operating room procedure. Elective surgical discharges are defined by specific MS-DRG codes with admission type recorded as elective (ATYPE=3).

[\*Appendix A - Operating Room Procedure Codes\*](#)

[\*Appendix E - Surgical Discharge MS-DRGs \(for discharges on or after October 1, 2007\)\*](#)

## DENOMINATOR EXCLUSIONS

Exclude cases:

- with a principal ICD-9-CM diagnosis code (or secondary diagnosis present on admission\*) for acute kidney failure
- with any dialysis procedure that occurs before or on the same day as the first operating room procedure\*\*
- with any dialysis access procedure that occurs before or on the same day as the first operating room procedure\*\*
- with a principal ICD-9-CM diagnosis code (or secondary diagnosis present on admission) for cardiac arrest
- with a principal ICD-9-CM diagnosis code (or secondary diagnosis present on admission) for cardiac arrhythmia
- with a principal ICD-9-CM diagnosis code (or secondary diagnosis present on admission) for shock
- with a principal ICD-9-CM diagnosis code for urinary tract obstruction
- with a principal ICD-9-CM diagnosis code (or secondary diagnosis present on admission) for chronic kidney failure
- MDC 14 (pregnancy, childbirth and the puerperium)
- with missing gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing), or principal diagnosis (DX1=missing)

-----  
 \*Only for cases that otherwise qualify for the numerator

\*\*If day of procedure is not available in the input data file, the rate may be slightly lower than if the information was available

### Cardiac arrest diagnosis codes: (CARDIID)

4275 CARDIAC ARREST

### Shock diagnosis codes: (SHOCKID)

63450	SPON ABORT W SHOCK-UNSP	66914	SHOCK DURING OR FOLLOWING LABOR AND DELIVERY
63451	SPON ABORT W SHOCK-INC	7855	SHOCK NOS (no longer valid)
63452	SPON ABORT W SHOCK-COMP	78550	SHOCK, UNSPECIFIED
63550	LEGAL ABORT W SHOCK-UNSP	78551	CARDIOGENIC SHOCK
63551	LEGAL ABORT W SHOCK-INC	78552	SEPTIC SHOCK
63552	LEGAL ABORT W SHOCK-COMP	78559	SHOCK WITHOUT MENTION OF TRAUMA, OTHER
63650	ILLEG ABORT W SHOCK-UNSP	9950	OTHER ANAPHYLACTIC SHOCK
63651	ILLEG ABORT W SHOCK-INC	9954	SHOCK DUE TO ANESTHESIA
63652	ILLEG ABORT W SHOCK-COMP	9980	POSTOPERATIVE SHOCK
/*** NOT VALID AFTER OCTOBER 1, 2011 **			

63750	ABORT NOS W SHOCK-UNSP	99800	POSTOPERATIVE SHOCK, UNSPECIFIED
63751	ABORT NOS W SHOCK-INC	99801	POSTOPERATIVE SHOCK, CARDIOGENIC
63752	ABORT NOS W SHOCK-COMP	99802	POSTOPERATIVE SHOCK, SEPTIC
6385	ATTEM ABORTION W SHOCK	99809	POSTOPERATIVE SHOCK, OTHER
6395	COMPLICATIONS FOLLOWING ABORTION AND ECTOPIC AND MOLAR PREGNANCIES, SHOCK	9994	ANAPHYLACTIC SHOCK, DUE TO SERUM
66910	SHOCK DURING OR FOLLOWING LABOR AND DELIVERY	99941	ANAPHYLACTIC REACTION DUE TO ADMINISTRATION OF BLOOD AND BLOOD PARTICLES
66911	SHOCK DURING OR FOLLOWING LABOR AND DELIVERY	99942	ANAPHYLACTIC REACTION DUE TO VACCINATION
66912	SHOCK DURING OR FOLLOWING LABOR AND DELIVERY	99949	ANAPHYLACTIC REACTION DUE TO OTHER SERUM
66913	SHOCK DURING OR FOLLOWING LABOR AND DELIVERY		

***Cardiac arrhythmia diagnosis codes: (CARDRID)***

4260	ATRIOVENTRICULAR BLOCK, COMPLETE	42732	ATRIAL FLUTTER
4270	PAROXYSMAL SUPRAVENTRICULAR TACHYCARDIA	42741	VENTRICULAR FIBRILLATION
4271	PAROSYSMAL VENTRICULAR TACHYCARDIA	42742	VENTRICULAR FLUTTER
4272	PAROXYSMAL TACHYCARDIA, UNSPECIFIED	4279	CARDIAC DYSRHYTHMIA
42731	ATRIAL FIBRILLATION		

***Urinary tract obstruction diagnosis codes: (URINARYOBSID)***

59371	VESICOURETERAL REFLUX WITH REFLUX NEPHROPATHY, UNILATERAL	5989	URETHRAL STRICTURE, UNSPECIFIED
59372	VESICOURETERAL REFLUX WITH REFLUX NEPHROPATHY, BILATERAL	59960	URINARY OBSTRUCTION, UNSPECIFIED
59373	OTHER VESICOURETERAL REFLUX WITH REFLUX NEPHROPATHY NOS	59969	URINARY OBSTRUCTION, NOT ELSEWHERE CLASSIFIED

5960	BLADDER NECK OBSTRUCTION	60001	HYPERTROPHY (BENIGN) OF PROSTATE WITH URINARY OBSTRUCTION AND OTHER LOWER URINARY TRACT SYMPTOMS (LUTS)
59800	URETHRAL STRICTURE DUE TO UNSPECIFIED INFECTION	60011	NODULAR PROSTATE WITH URINARY OBSTRUCTION
59801	URETHRAL STRICTURE DUE TO INFECTIVE DISEASES CLASSIFIED ELSEWHERE	60021	BENIGN LOCALIZED HYPERPLASIA OF PROSTATE WITH URINARY OBSTRUCTION AND OTHER LOWER URINARY TRACT SYMPTOMS (LUTS)
5981	TRAUMATIC URETHRAL STRICTURE	60091	HYPERPLASIA OF PROSTATE, UNSPECIFIED, WITH URINARY OBSTRUCTION AND OTHER LOWER URINARY SYMPTOMS (LUTS)
5982	POSTOPERATIVE URETHRAL STRICTURE	7536	ATRESIA AND STENOSIS OF URETHRA AND BLADDER NECK
5988	OTHER SPECIFIED CAUSES OF URETHRAL STRICTURE		

***Chronic kidney (renal) failure diagnosis codes: (CRENLFD)***

40301	MAL HYP KIDNEY W CHR KID	40413	BEN HYP HT/KID W HF/KID
40311	BEN HYP KIDNEY W CHR KID	40492	HYP HT/KID NOS W CHR KID
40391	HYP KIDNEY NOS W CHR KID	40493	HYP HRT/KID NOS W HF/KID
40402	MAL HY HRT/KID W CHR KID	5855	CHRON KIDNEY DIS STAGE V
40403	MAL HYP HRT/KID W HF/KID	5856	END STAGE RENAL DISEASE
40412	BEN HYP HT/KID W CHR KID		

***Dialysis procedure exclusion procedure codes: (DIALYIP)***

3995	HEMODIALYSIS	5498	PERITONEAL DIALYSIS
------	--------------	------	---------------------

***Dialysis access procedure exclusion procedure codes: (DIALYI2P)***

3895	Venous catheterization for renal dialysis	3993	Insertion of vessel-to-vessel cannula
3927	Arteriovenostomy for renal dialysis	3994	Replacement of vessel-to-vessel cannula
3942	Revision of arteriovenous shunt for renal dialysis		